Field Modification Form
Lower Passaic River Restoration Project
Remedial Investigation
Chemical Water Column Monitoring
Project No: 60139067 – LPRSA and 60144462 - NBSA
Task No: A557

Field Modification Number: FM-130418-1, revised May 16, 2013

Document (plan or SOP title and date): Quality Assurance Project Plan, Lower Passaic River Restoration Project. Quality Assurance Project Plan/Field Sampling Plan Addendum. RI Water Column Monitoring/Small Volume Chemical Data Collection QAPP, July 2012 Revision 3

Activity: High Flow Event #2, specifically tributary sampling (Second and Third Rivers) and Newark Bay sampling.

Proposed Modifications:

The QAPP is modified for two tasks by this Field Modification as described below and in Attachment 1 (memo to Bill Potter and Rob Law/dmi from Kristen Durocher/AECOM, dated April 5, 2013 and revised May 16, 2013), and Attachment 2 (memo to Kristen Durocher/AECOM from Ryan McCarthy and Don Kretchmer/AECOM, dated March 26, 2013).

Tributary Sampling
On page 10 of 11 on the Introduction, it is specified that "*The thalweg will be the targeted location as it is assumed that the denser layer with net inflow is located in the deepest part of the cross section. In addition, the highest velocities are commonly observed at the thalweg so that the rate of discharge (i.e., volume/time) is highest in that location and the collected samples will best represent the dominant flux past that cross-section*" and "*Samples will be collected from two depths (surface and near bottom) at the thalweg for the stations in the LPR (RM 0-17.4) and NBSA, and at mid-depth for locations above Dundee Dam and the LPRSA tributaries.*" Given the logistics necessary for collecting a mid-depth thalweg sample in the tributaries (having a field team member wade into the water with the YSI sonde and sampling inlet), an alternative method was engineered to more safely perform the sampling (to keep field staff out of the water during a potentially high flow). A complete description of the method is included as Attachment 2 (3/26/13 Memorandum) to this Field Modification. The proposed modification may mean that the sample is collected slightly off the thalweg, and may not be at mid-depth.

This proposed modification only applies to the Second and Third River Stations. Samples collected from the Saddle River will be collected from their previously sampled locations. The Saddle River is sampled from a bridge; no modification to the Saddle River sampling plan is necessary during high flows. All other previously approved methods associated with collecting the samples will be employed at all locations

The same changes apply to Worksheets #11, #14, #18, and Section 2 of Appendix A.

Newark Bay Sampling
The Newark Bay sampling locations (Newark Bay North, Newark Bay East, Newark Bay Northeast, Newark Bay Northwest, and Newark Bay South) are currently proposed to be sampled synoptically with the Lower Passaic River stations. However a review of the Spring 2010 suspended sediment concentration (SSC) data from the Physical Water Column Monitoring program indicated that solids are not immediately suspended/ mobilized during a high flow storm event. The data are discussed in detail and presented on Figure 1 in Attachment 1. A modeling exercise was also conducted to estimate, based on flow conditions, when the solids signal would be expected to be seen at the stations in Newark Bay (Attachment 1). Based on the modeling outputs, it was concluded that, if the Newark Bay sampled were collected synoptically with the LPR samples, that the suspended solids contribution from the LPR would not be captured Therefore, in order to capture the solids, an approximate 24 hour delayed start (based on 3,000 cfs flows) in sampling the Newark Bay stations is proposed (based on the timing of the peak flows at the Dundee Dam).

Field Modification Form
Lower Passaic River Restoration Project
Remedial Investigation
Chemical Water Column Monitoring
Project No: 60139067 – LPRSA and 60144462 - NBSA
Task No: A557

Worksheet #18 states "*Samples to be collected spaced throughout the predicted storm hydrograph; two on rising limb, one near peak, one on falling limb*" and will be changed to "*Samples to be collected spaced throughout the predicted solids signal from the LPR; two on rising limb, one near peak, one on falling limb of signal. The length of this delay depends on the peak flows at Dundee Dam, and will most likely be approximately 24 hours from peak at Dundee. The length of delay will be based on the modeled solids signal using predicted peak flows from Little Falls, and the actual peak flow at Dundee Dam, to the extent possible, within 500 cfs. The samples will be collected on the rising, peak, and falling limb of the solids signal, not based on the timing of the Little Falls hydrograph.*"

Worksheet #11 and Appendix A are also modified as above.

Worksheet #27 describes the sample identification scheme for the Events. This worksheet is modified by this Field Modification such that the codes for rising, peak and falling limb of the hydrograph will also apply to rising, peak and falling signal of solids in Newark Bay.
There are no changes proposed to the sampling at Arthur Kill, Kill van Kull, or the Hackensack River. Arthur Kill and the Kill van Kull will be sampled once during high tide and once during low tide as specified in the QAPP. The tides captured will be near the modeled peak solids signal in Newark Bay. Sampling in the Hackensack River will occur per the QAPP, on the rising, peak, and falling limbs of the Dundee Dam hydrograph.

When will these proposed changes to the CWCM High Flow sampling program be implemented?

The changes described above are proposed to be put into practice during the second CWCM High Flow event, tentatively targeted to occur during the Spring of 2013.

Effective Date: April 18, 2013.

Rationale: This Field Modification Form provides a formal update to the SV QAPP to incorporate proposed changes to the scope of work discussed during conference calls with USEPA on March 18 & 25, 2013, the comments received from USEPA on May 10, 2013, and described above.

Submitted by: Ryan McCarthy	**Date:** April 18, 2013
FTM Manager Approval:	**Date:** May 16, 2013
Project QA Manager Approval: Debra L. Summons	**Date:** May 16, 2013
Task Manager Approval:	**Date:** May 16, 2013